

AMENDMENTS TO CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A piezoelectric actuator comprising:

a base frame;

a motion stimulator including a support member and a vibrating plate in which a piezoelectric element and a reinforcing portion are stacked;

a rotor having an outer peripheral surface, rotationally supported on the base frame;

wherein the support member has a fixing portion fixed to the base frame and supports the vibrating plate on the base frame; and

an elastic member for providing an elastic force to the rotor so that the outer peripheral surface of the rotor abuts against a longitudinal end of the vibrating plate;

a rotor support member including a shaft, said shaft being configured to support the rotor;

wherein, when the piezoelectric element vibrates in the longitudinal direction of the vibrating plate, the vibrating plate is vibrated by the vibration, and the rotor is driven; and

wherein said rotor support member is a rotating member and its shaft is movable in a circular arc so as to permit the rotor to move in a circular arc.

2. (Previously Presented) A piezoelectric actuator comprising:

a base frame;

a motion stimulator including a support member and a vibrating plate in which a piezoelectric element and a reinforcing portion are stacked;

a rotor having an outer peripheral surface, rotationally supported on the base frame, a rotating shaft thereof being movable;

wherein the support member has a fixing portion fixed to the base frame and supports the vibrating plate on the base frame;

an elastic member for providing an elastic force to the rotor so that the outer peripheral surface of the rotor abuts against a longitudinal end of the vibrating plate;

wherein, when the piezoelectric element vibrates in the longitudinal direction of the vibrating plate, the vibrating plate is vibrated by the vibration, and the rotor is driven in one direction in accordance with the displacement of the vibrating plate due to the vibration;

a rotating member for rotationally supporting the rotating shaft of the rotor;

a first gear sharing the rotating shaft with the rotor, and integrally rotated with the rotor; and

a second gear meshing with the first gear;

wherein the center of rotation of the rotating member and the rotating shaft of the rotor and the second gear are arranged substantially in a straight line; and

the abutment position between the rotor and the vibrating plate is located in a direction perpendicular to said straight line.

3. (Previously Presented) A piezoelectric actuator as claimed in Claim 1, wherein a force of the elastic member for pressing the rotor toward the end of the vibrating plate is increased with an increase in a rotation load of the rotor.

4. (Previously Presented) A piezoelectric actuator comprising:

a base frame;

a motion stimulator including a support member and a vibrating plate in which a piezoelectric element and a reinforcing portion are stacked;

a rotor having a side-peripheral surface, and rotationally supported on the base frame; and

wherein the support member has a fixing portion fixed to the base frame and supports the vibrating plate on the base frame;

wherein the rotor is formed of an elastic body arranged on a position where the side-peripheral surface thereof abuts against a longitudinal end of the vibrating plate, and presses the side-peripheral surface against the end of the vibrating plate by the elastic force thereof; and

wherein, when the piezoelectric element vibrates in the longitudinal direction of the vibrating plate, the vibrating plate is vibrated by the vibration, and the rotor is driven.

5. (Previously Presented) A piezoelectric actuator as claimed in Claim 4, wherein a concave groove is formed in said side-peripheral surface of said rotor.

6. (Cancelled)

7. (Currently Amended) ~~The~~ A piezoelectric actuator of Claim 1, comprising:

a base frame;

a motion stimulator including a support member and a vibrating plate in which a piezoelectric element and a reinforcing portion are stacked;

a rotor having an outer peripheral surface, rotationally supported on the base frame;

wherein the support member has a fixing portion fixed to the base frame and supports the vibrating plate on the base frame; and

an elastic member for providing an elastic force to the rotor so that the outer peripheral surface of the rotor abuts against a longitudinal end of the vibrating plate;

a rotor support member including a shaft, said shaft being configured to support the rotor;

wherein, when the piezoelectric element vibrates in the longitudinal direction of the vibrating plate, the vibrating plate is vibrated by the vibration, and the rotor is driven; and

wherein said rotor support member is a rotating member, and the center of rotation of the rotating member is placed outside the outer circumference of the rotor.

8. (Previously Presented) A timepiece comprising:
a piezoelectric actuator as claimed in Claim 1.
9. (Previously Presented) A portable device comprising:
a piezoelectric actuator as claimed in Claim 1; and
a battery for supplying power to the piezoelectric actuator.
10. (Previously Presented) A timepiece comprising:
a piezoelectric actuator as claimed in Claim 2.
11. (Previously Presented) A portable device comprising:
a piezoelectric actuator as claimed in Claim 2; and
a battery for supplying power to the piezoelectric actuator.
12. (Previously Presented) A timepiece comprising:
a piezoelectric actuator as claimed in Claim 4.
13. (Previously Presented) A portable device comprising:
a piezoelectric actuator as claimed in Claim 4; and
a battery for supplying power to the piezoelectric actuator.
14. (New) A piezoelectric actuator comprising:
a base frame;
a motion stimulator including a support member and a vibrating plate in which a piezoelectric element and a reinforcing portion are stacked;
a rotor having an outer peripheral surface, rotationally supported on the base frame;

wherein the support member has a fixing portion fixed to the base frame and supports the vibrating plate on the base frame; and

an elastic member for providing an elastic force to the rotor so that the outer peripheral surface of the rotor abuts against a longitudinal end of the vibrating plate;

wherein, when the piezoelectric element vibrates in the longitudinal direction of the vibrating plate, the vibrating plate is vibrated by the vibration, and the rotor is driven; and

wherein said rotor is movable in a circular arc.

15. (New) The piezoelectric actuator of claim 14, further comprising a rotor support member configured to support the rotor, wherein the rotor support member is movable in a circular arc so as to permit the rotor to move in a circular arc.